URS

April 10, 2008

Ms. Lorrie Bradley, ESU Planner,
San Diego County Department of Public Works
5469 Kearny Villa Road, Suite 305
San Diego, California 92123

Subject: Tavern Road Culvert Improvement Project – Biological Report
URS Project Number 27657061

Dear Ms. Bradley:

URS is pleased to provide this biological letter report for the subject project.

Summary
The Tavern Road Culvert Improvement Project is located within a suburban setting in the community of Alpine, in southeastern San Diego County. The area has been altered in the past as Alpine Creek has been channelized along the roadway and adjacent to developed structures in the area. Jurisdictional Waters are limited to the scoured creek bed, which is categorized as Waters of the U.S./State. Some native oak trees persist in the area, dispersed among non-native trees and invasive weeds. Proposed mitigation for project impacts includes replacement oak tree plantings and creation/enhancement of wetlands for impacts to unvegetated jurisdictional waters on-site or in a nearby location, and avoiding potential impacts to one raptor nest, located just off-site 60 feet to the east of the proposed disturbance area.

Introduction
The proposed project is replacement and improvement of the drainage facilities at the intersection of Tavern Road and Arnold Way to accommodate the 100 year storm flows. The current drainage facility consists of one corrugated metal pipe (CMP) which is 66" by 45"; which will be replaced by a six foot (6') x three foot (3') double box culvert approximately 127 feet in length. The culvert will also be extended to accommodate the widths of the road required by their GP2020 classification. Other aspects of the project include replacement of the curb and sidewalk, replacement of the headwalls, addition of a guardrail along the northeast and northwest corners of the intersection, the addition of a rip-rap energy dissipator at the outfall of the box culvert and some minor grading.

The project is located at the Alpine Creek crossing of Tavern Road, just to the north of the intersection with Arnold Way (Figures 1 and 2). The setting is in a suburban area of the Community of Alpine, in southeastern San Diego County, California. The Alpine Creek drainage begins in a rural area to the northeast of the site, and drains through a series of culverts as it runs through the more urban section of Alpine, and under Tavern Road. The stream course in this section is vegetated by a mixture of native oak trees and non-native ornamental trees, shrubs, and weeds. Alpine Creek flows through a wider naturally vegetated canyon west of the project area, and eventually enters El Capitan Reservoir several miles down stream. URS biologists Rick Bailey and Theresa Miller conducted a site assessment on March 11, 2008.

Regional Context
This region of San Diego County in the vicinity of Alpine is predominantly rural and suburban. The suburban community of Alpine is in the foothills to middle elevations of the Laguna Mountains. The large quantity of natural open space in the region supports a great diversity and abundance of native plant

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and wildlife species. The project site is within a mostly developed suburban landscape within the community of Alpine. The project is within the Metro-Lakeside-Jamul Segment of the MSCP. The MSCP designation is Unincorporated Lands within the Metro-Lakeside-Jamul Segment.

Vegetation Communities

The project site consists of an altered landscape where Alpine Creek has been channelized. Some native oak trees persist along the channel banks, while many non-native eucalyptus trees provide the dominant canopy cover. Other non-native ornamental trees and shrubs, and weeds are also present. The creek bed is scoured, and lacks vegetation. Vegetation communities, as defined by Holland, include disturbed coast live oak woodland, ornamental vegetation, and disturbed vegetation (Figure 2).

The disturbed coast live oak woodland is located to the west of Tavern Road directly adjacent to Arnold Way. This area consists of mature and sapling coast live oak trees (*Quercus agrifolia*) interspersed with disturbance-related species. The mature trees range in height from 15 to 40 feet, and the saplings are younger trees with a trunk diameter less than 4 inches at one meter above the ground. The understory consists of non-native ornamental or weedy herbaceous species, such as brome grass (*Bromus* sp.) and ice plant (*Carpobrotus edulis*). A mixture of non-native ornamental trees is present among the oaks, including gum trees (*Eucalyptus* sp.) and California pepper (*Schinus molle*). The disturbed coast live oak woodland expands into a larger less disturbed area to the west of the site, where the natural canyon broadens and adjacent development is further away from the active stream channel.

Ornamental and disturbed/ruderal vegetation assemblages are located in the remaining areas of the project site, along roadways, parking lots, and apartment building complexes. These areas consist of non-native ornamental trees and shrubs, and invasive weedy species. Typical ornamental trees and shrubs include gum trees, California pepper trees, oleander (*Nerium* sp,), ice plant, and lantana (*Lantana* sp.). Invasive weeds in the project area include brome grass, yellow sorrel (*Oxalis corniculata*), wild oats (*Avena* sp.), and filaree (*Erodium* sp.).

Jurisdictional Wetlands and Waterways

The U.S. Army Corps of Engineers defines wetlands as areas that are inundated or saturated by surface water at a frequency and duration sufficient to support vegetative species adapted for life in water-saturated soils (hydric soils). The creek channel on-site does not support wetland plant species or hydric soil types, but does form a water-eroded drainage channel within a well-defined bed and banks and Ordinary High Water Mark (OHWM) as defined by the ACOE Arid West Manual. ACOE Field data forms are provided as an attachment. Impacts to the drainage channel that includes the OHWM or channel banks would require a 404 permit and 401 water quality certification, and a 1602 agreement. The creek channel has an OHWM width of 4 feet on the eastern side of Tavern Road, and an OHWM width of 2.5 feet on the western side of Tavern Road. These areas lack wetland vegetation and hydric soil types, but flowing water leaves a cut channel with steep banks. The creek channel on-site has 6-foot wide banks on the east side of Tavern Road, and 5-foot wide banks on the west side of the road. The scoured creek channel is categorized as Unvegetated Other Waters of the U.S./State (OWUS). Impacts to Federal Jurisdictional Waters encompass 0.013 acre and to State Jurisdictional Channel encompass 0.023 acre (Table 1).

Table 1. Jurisdictional Waters of U.S./State Delineation within Impact Area.

Channel Location	ACOE OWUS				CDFG Channel			
	Length (ft)	Width (ft)	Area (sq ft)	2:1 Mitigation Ratio	Length (ft)	Width (ft)	Area (sq ft)	2:1 Mitigation Ratio
East of Tavern Road	63	4	251		63	6	378	
West of Tavern Road	126	2.5	315		126	5	630	
Total Impacted	**189 ft**		**0.013 ac**	**0.026 ac**	**189 ft**		**0.023 ac**	**0.046 ac**
Total Onsite	**278 ft**		**0.020 ac**	**---**	**278 ft**		**0.033 ac**	**---**

Special Status Species

No sensitive species reportable to the CNDDB were detected (See attached CNDDB query list), nor are they expected to occur in the immediate project area. Biologically sensitive species in the project area include coast live oak, Engelmann oak (*Quercus engelmannii*, CNPS List 4), and a raptor nest. Many coast live oak trees are present at the western end of the project area. Several Engelmann oaks and one coast live oak tree are located east of the project site, 50 feet or more from the project impact area. Nesting raptors (birds of prey) are protected under the Migratory Bird Treaty Act and California Fish and Game Code. One large raptor nest is located in a eucalyptus tree about 60 feet to the east of Tavern Road, directly adjacent to Arnold Way (Figure 2). There were no birds seen at the nest during the site survey, although a red-tailed hawk (*Buteo jamaicencis*) was seen flying high over the area. The nest tree is not expected to be affected by the project due to its distance from the impact area. Potential indirect impacts to the raptor nest site would be determined prior to construction, if construction is initiated during the bird breeding season.

Other Unique Features / Resources

The project is lacking in other unique features and resources due to the urban and suburban nature of the site. Wildlife movement may be temporarily affected, but given the surrounding suburban land uses and temporary nature of the impacts, this impact is considered to be less than significant.

Significance of Project Impacts and Recommended Mitigation

Impacts of the project include disturbed coast live oak woodland (0.014 acre), developed, ornamental, and disturbed habitats (0.12 acre), Waters of the U.S./State (0.013 / 0.023 acre), and potential indirect affects to one raptor nest. (Figure 3, Tables 1 and 2).

Impacts to eucalyptus, ornamental and disturbed vegetation are not considered significant. This is due to the lack of native species associated with these habitats. A total of 4 eucalyptus trees may be removed during project implementation.

The impact to 0.014 acre of disturbed coast live oak woodland is considered significant due to the historical loss of oak woodland habitats within San Diego County and the sensitive status of coast live oak trees. A total of 3 mature oak trees are expected to be removed during project implementation. Coast live oak trees (9 mature oaks) on-site would also be indirectly affected within their root zone by adjacent grading of the creek channel and placement of rip rap. No impacts to Englemann oaks are anticipated.

Table 2. Impacts to Vegetation

Vegetation type (Holland Code)		Acreage On Site	Impact Acreage	Mitigation Ratio	Mitigation Acreage
D-CLOW	Disturbed Coastal Live Oak Woodland (71160)	0.099	0.014	2:1	0.028*
DEV	Developed (12000)	0.312	0.053	N/A	
DIST	Disturbed (13000)	0.065	0.042	N/A	
EUC	Eucalyptus (11100)	0.14	0.012	N/A	
ORN	Ornamental (12000)	0.077	0.023	N/A	
D-VEG	Disturbed Vegetation (11300)	0.051	0.019	N/A	
	Total	**0.744**	**0.163**		**0.028**

* In addition to oak woodland acreage mitigation, 3 individual mature oak trees to be removed will be replaced on site at a 3:1 ratio.

Impacts to 0.013 / 0.023 acre of Waters of the U.S./Unvegetated Streambed is considered permanent, since the creek channel will include a rip-rap energy dissipator on the west side of Tavern Road. Impacts to jurisdictional waters are considered significant. Prior to project implementation, a 404 permit, 401 water quality certification, and 1602 Streambed Alteration Agreement must be obtained from the ACOE, Regional Water Quality Control Board, and CDFG, respectively. Mitigation consistent with the above permit conditions of approval would be satisfactory mitigation for CEQA purposes.

Mitigation for project impacts to jurisdictional water will consist of creation/enhancement of 0.026 acre of ACOE OWUS and 0.046 acre CDFG jurisdictional unvegetated streambed (a mitigation ratio of 2:1) within an unvegetated portion of the channel downstream of the proposed project site or at another suitable location within the same watershed (Table 1). Mitigation for impacts to disturbed oak woodland will consist of restoration of 0.028 acre of coast live oak woodland (2:1 mitigation ratio) or through acquisition of 0.028 acre credit of Tier I habitat within an approved mitigation bank in the project vicinity (Table 2). In addition, the 3 permanently impacted mature oak trees will be replaced on site at a ratio of 3:1.

Potential indirect impacts to one raptor nest, located in a eucalyptus tree about 60 feet east of Tavern Road, can be avoided by scheduling project implementation during the non-breeding bird season (August through January). In order to be in compliance with the Migratory Bird Treaty Act and Fish and Game Code, any tree removal or ground disturbance during the breeding season would require a pre-disturbance nest survey to determine whether any active nests would be at risk during project implementation. If a nest site is determined to be active (i.e., containing eggs or chicks), then tree or vegetation removal must be postponed until after the nest becomes inactive.

Cumulative Impacts

The project impacts are considered minimal in contrast to the large amount of natural open space and sensitive biological resources present in eastern San Diego County. For this reason, project impacts are not considered cumulatively significant.

Best Management Practice Measures

Due to the location and vegetation composition of the proposed limits of disturbance, the following mitigation measures listed below are appropriate construction Best Management Practices (BMP) to be implemented during construction.

1. To avoid any direct and indirect impacts to raptors and/or any migratory birds, removal of habitat that may support active nests should occur outside of the breeding season for these species (January 15 to August 15). If removal of habitat and/or construction activities adjacent to nesting habitat must occur during the breeding season, the applicant shall retain a County-approved biologist to conduct a pre-construction survey to determine the presence or absence of nesting birds on and within 300-feet of the construction area and nesting raptors within 500-feet of the construction area. The pre-construction survey must be conducted within 10 calendar days prior to the start of construction, the results of which must be submitted to the County for review and approval prior to initiating any construction activities. If nesting raptors are detected, a biological monitor should be present on-site as necessary during construction. The biological monitor shall ensure that perimeter construction fencing is being maintained to minimize construction impacts and ensure that no nest containing eggs or chicks is ”taken”, as defined by the Migratory Bird Treaty Act (MTBA) or Fish & Game Code Section 86, until all young have fledged or the nest becomes inactive.

2. Mitigation for project impacts will consist of creation/enhancement of 0.026 acre of ACOE and 0.046 acre CDFG jurisdictional unvegetated streambed, a ratio of 2:1 within an unvegetated portion of the channel downstream of the proposed project site or at another suitable location within the same watershed. Mitigation for impacts to disturbed oak woodland will consist of restoration of 0.028 acre of Coast live oak woodland (2:1) or through acquisition of 0.028 acre credit of Tier I habitat within an approved mitigation bank. In addition, the 3 permanently impacted mature oak trees will be replaced on site at a ratio of 3:1.

3. Prior to initiation of grading, temporary orange biological fencing shall be installed along the limits of grading to ensure no impacts to any adjacent sensitive biological resources. Prior to and during construction, the biological monitor will verify that biological fencing is properly installed and maintained.

4. The biological monitor shall attend a pre-construction meeting prior to initiating grading and be onsite to monitor all vegetation clearing and periodically thereafter to ensure implementation of appropriate resource protection measures.

5. Prior to start of construction the County shall prepare a Storm Water Pollution Prevention Plan (SWPPP) to the satisfaction of the County Engineer to reduce the potential impact to jurisdictional waters. The detailed measures identified in the SWPPP must be noted on the grading plans and implemented prior to and during site preparation and construction. The applicant shall also be responsible for implementing the measures identified in the SWPPP to the satisfaction of the County Engineer and biological monitor.

Thank you for the opportunity to provide this biological assessment. If you have any question, please call me at 619-294-9400.

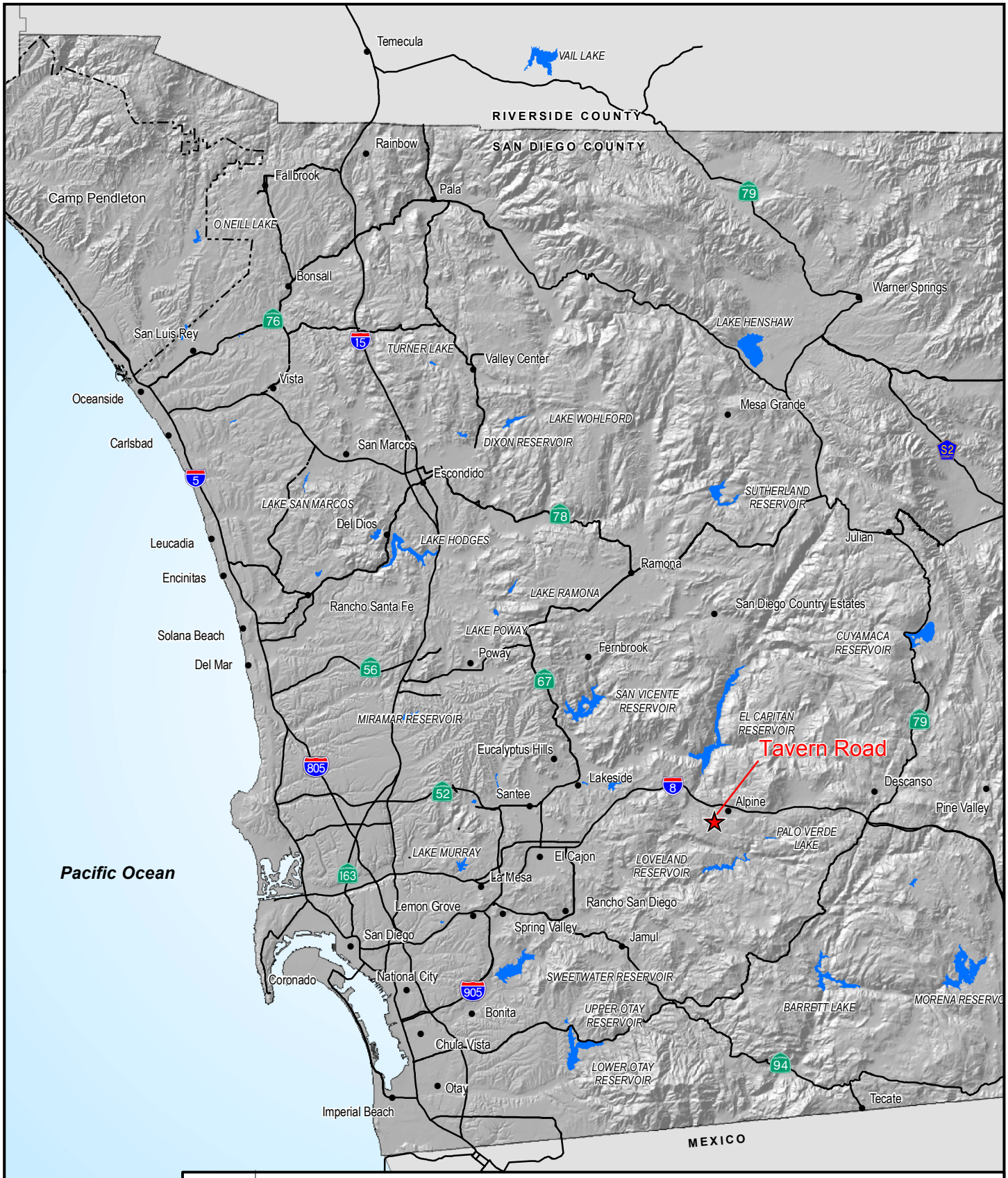
Sincerely,

URS Corporation

Patrick J. Mock, PhD
Principal Scientist

List of Figures and Attachments

- Figure 1 Project Vicinity Map
- Figure 2 Biological Resources Map
- Figure 3 Impact Assessment
- Figure 4a Jurisdictional Waters Map
- Figure 5b Jurisdictional Waters
- Lists of Plants and Animals detected during site assessment
- CNDDB Query Results
- ACOE Wetland Delineation completed field forms
- Site photographs



SOURCES: SANDAG (Freeways, County Boundary, Lakes, Elevation 2005); SanGIS (Highways 2007); TIGER (Cities 2000).

TAVERN ROAD VICINITY MAP

URS

4 0 4 8 Miles

SCALE: 1" = 8 Miles (1:506,880)
SCALE CORRECT WHEN PRINTED AT 8.5X11

CREATED BY MI	DATE: 04-01-08	FIG. NO:
PM: PM	PROJ. NO: 27657061.00100	1

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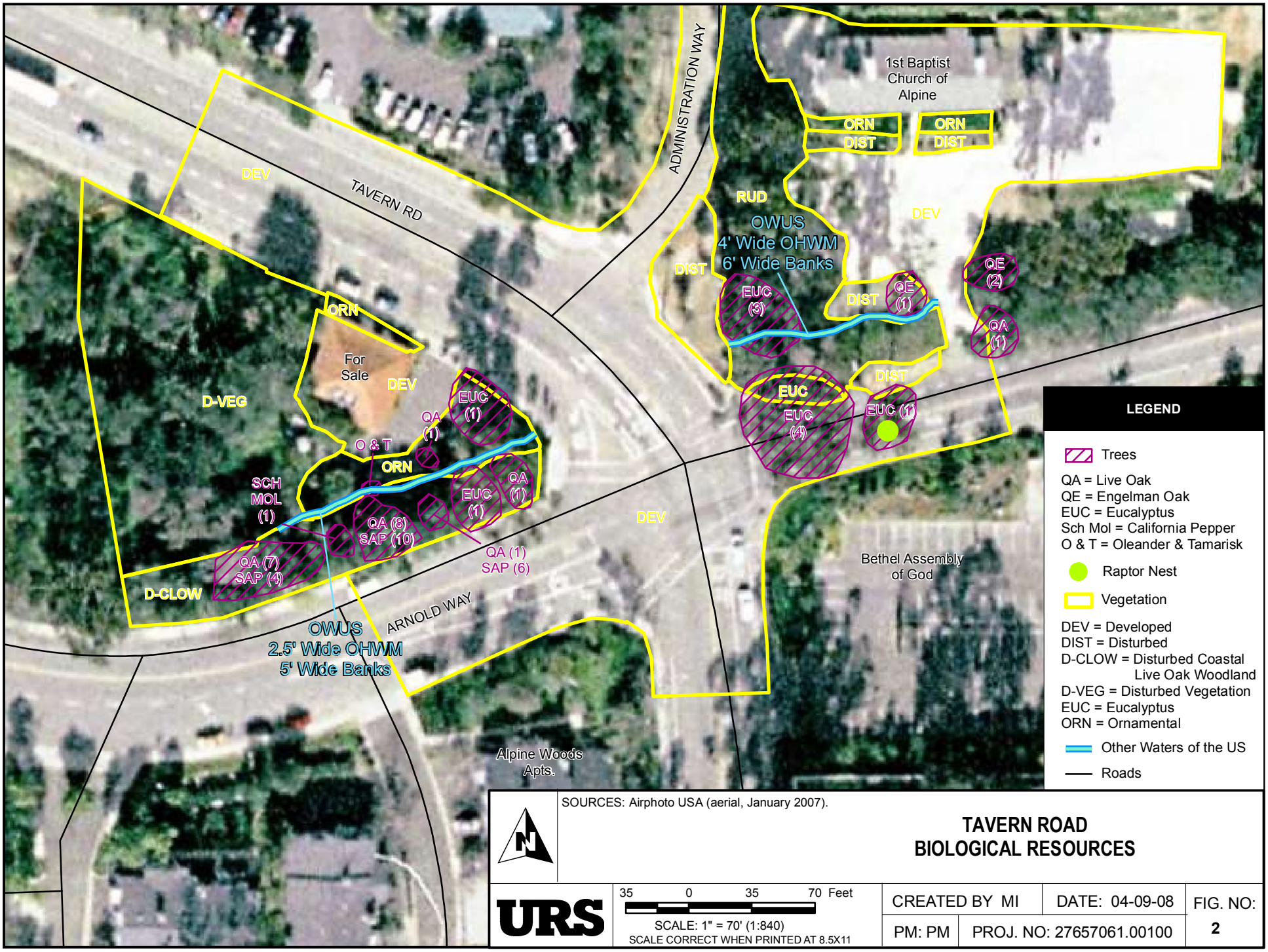

SOURCES: Airphoto USA (aerial, January 2007).

TAVERN ROAD
BIOLOGICAL RESOURCES

URS

35 0 35 70 Feet

SCALE: 1" = 70' (1:840)

SCALE CORRECT WHEN PRINTED AT 8.5X11

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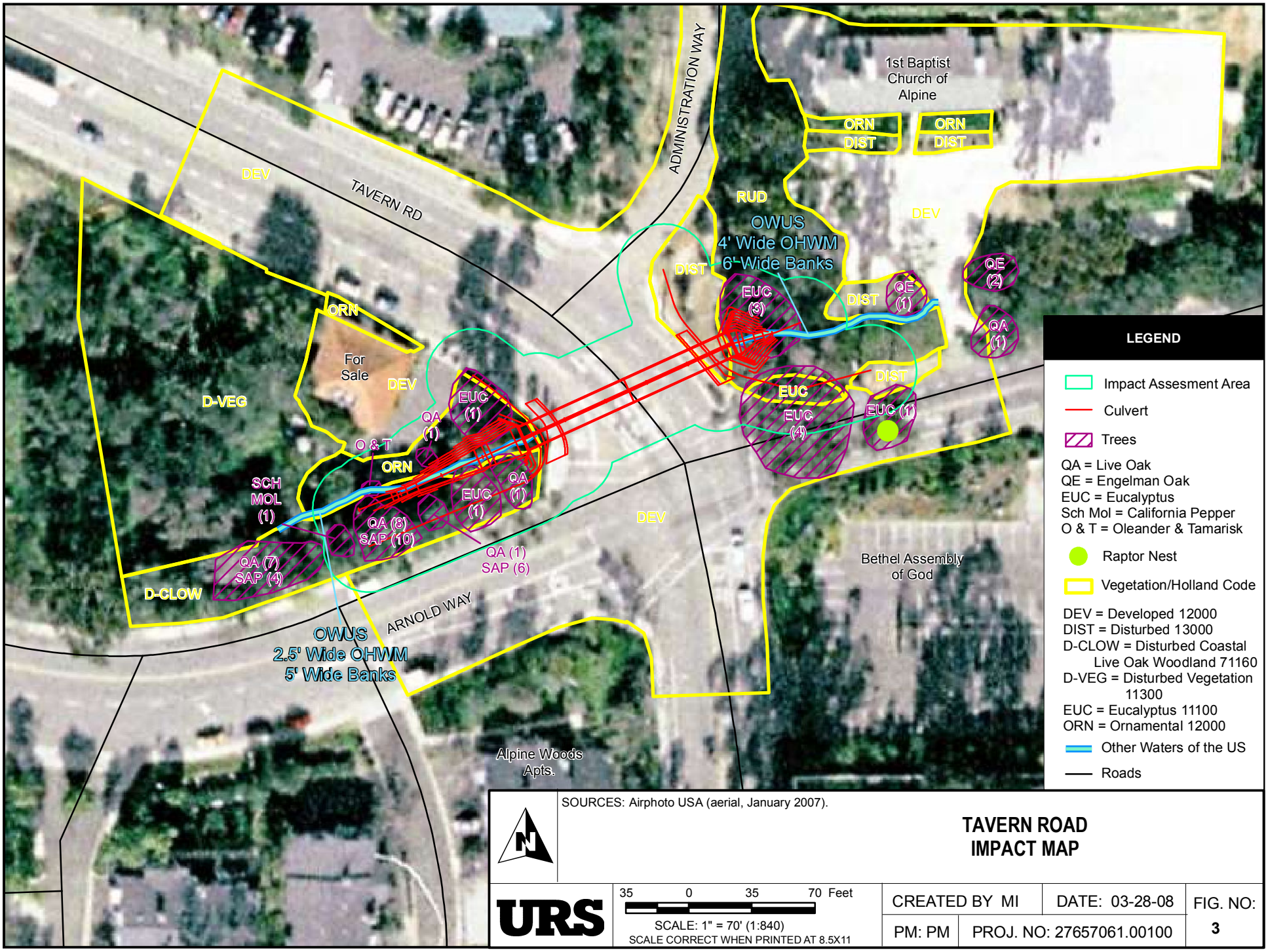

SOURCES: Airphoto USA (aerial, January 2007).

TAVERN ROAD IMPACT MAP

URS

35 0 35 70 Feet

SCALE: 1" = 70' (1:840)

SCALE CORRECT WHEN PRINTED AT 8.5X11

CREATED BY MI	DATE: 03-28-08	FIG. NO: 3
PM: PM	PROJ. NO: 27657061.00100	

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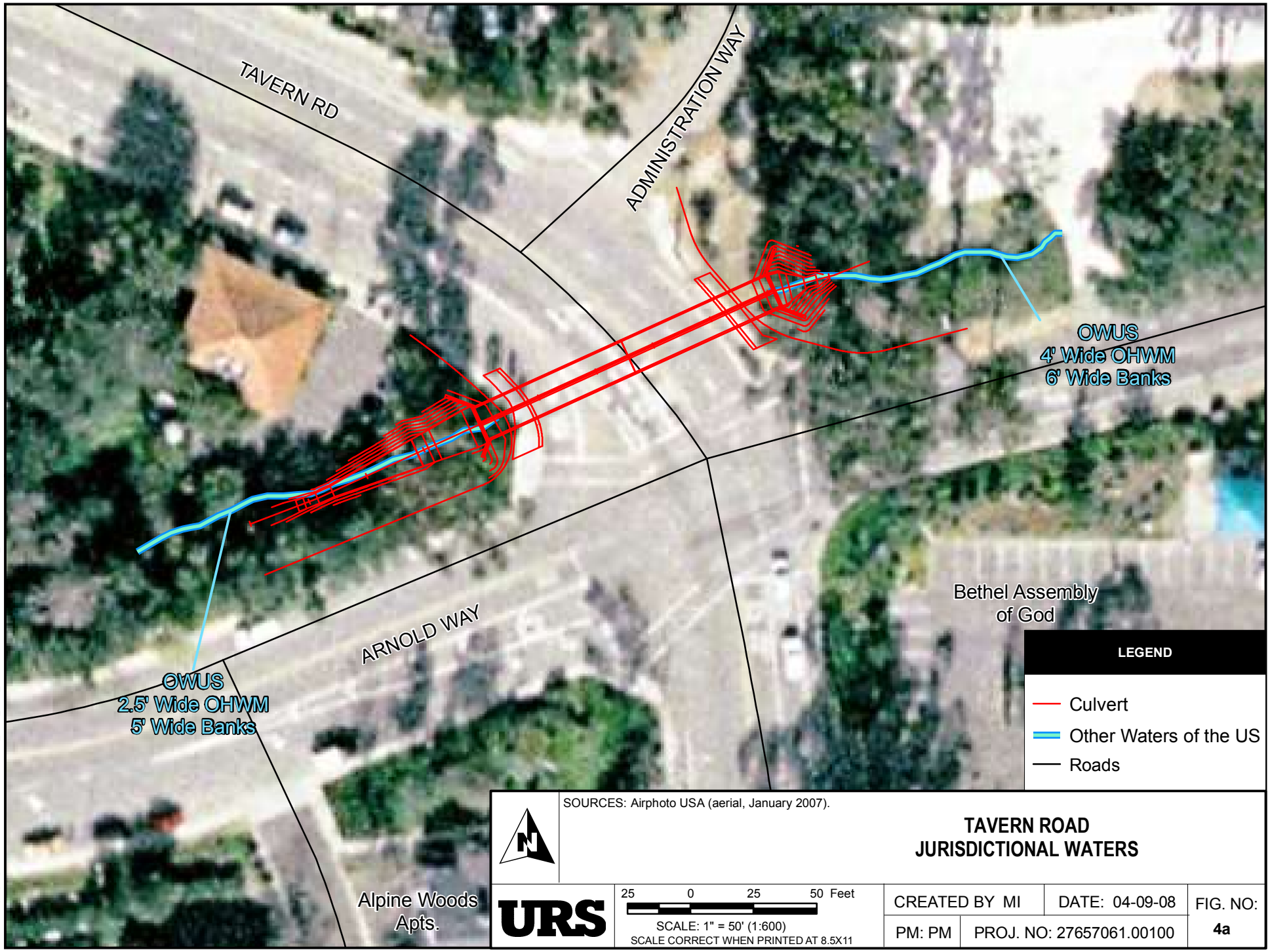

SOURCES: Airphoto USA (aerial, January 2007).

TAVERN ROAD
JURISDICTIONAL WATERS

URS

25 0 25 50 Feet

SCALE: 1" = 50' (1:600)

SCALE CORRECT WHEN PRINTED AT 8.5X11

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Tavern Road Culvert Improvement Project

Plant Species List

<u>Class Angiospermae</u> – Subclass Monocotyledones

Poaceae – Grass Family

Arundo donax	giant reed
Avena barbata	wild oat, slender oat
Bromus diandrus	rip-gut brome
Sorghum halepense	Johnson grass

<u>Class Angiospermae</u> – Subclass Dicotyledones

Aizoaceae – Carpetweed Family

Carpobrotus edulis	ice plant, Hottentot fig

Anacardiaceae – Sumac Family

Toxicodendron radicans ssp. *diversilobum*	poison oak
Schinus molle	California pepper-tree, Peruvian pepper-tree

Apocynaceae – Dogbane Family

Nerium oleander	oleander
Vinca major	blue periwinkle

Asteraceae – Sunflower Family

Gazania sp.	African daisy

Fabaceae – Pea Family

Melillotus indicus	Indian sweet clover

Fagaceae – Oak Family

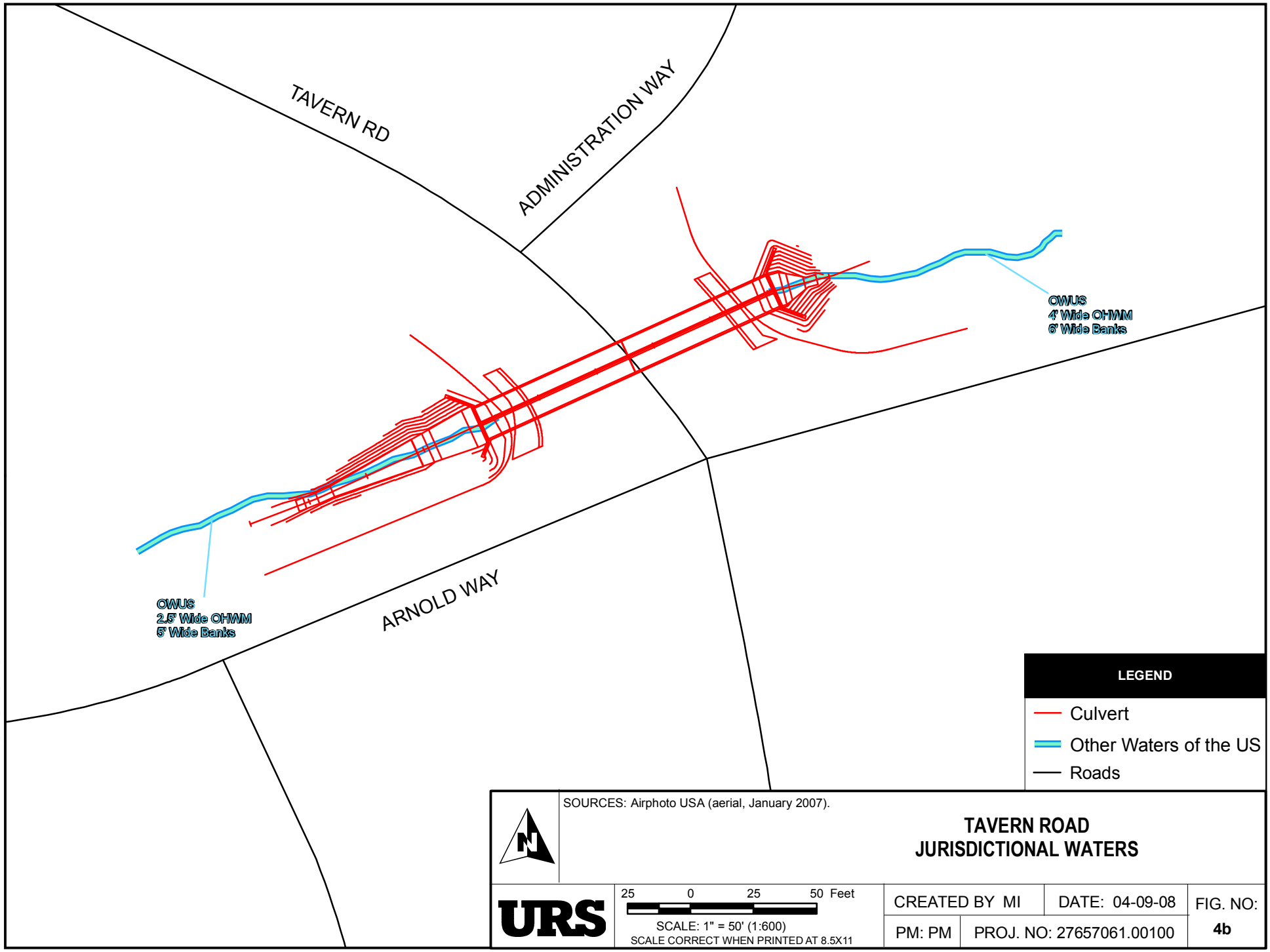
Quercus agrifolia var. *agrifolia*	coast live oak
Quercus engelmannii	Engelmann oak

Geraniaceae – Geranium Family

Erodium cicutarium	red-stem filaree

Myrtaceae – Myrtle Family

Eucalyptus sp.	Eucalyptus, gum tree



SOURCES: Airphoto USA (aerial, January 2007).

TAVERN ROAD
JURISDICTIONAL WATERS

URS

25 0 25 50 Feet

SCALE: 1" = 50' (1:600)

SCALE CORRECT WHEN PRINTED AT 8.5X11

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Oxalidaceae – Wood-sorrel Family

Oxalis corniculata ssp. *corniculata*	yellow sorrel

Polygonaceae – Buckwheat Family

Eriogonum fasciculatum ssp. *fasciculatum*	flat-top buckwheat

Verbenaceae – Vervian Family

Lantana sp.	lantana

Animal Species List

Birds

Buteo jamaicencis	red-tailed hawk
Zenaida macroura	mourning dove
Aphelocoma coerulescens	scrub jay
Corvus corax	common raven
Psaltriparus minimus	common bushtit
Mimus polyglottos	northern mockingbird
Carpodacus mexicanus	house finch
Carduelis psaltria	lesser goldfinch

Mammals

Didelphis virginiana	Virginia opossum

CNDDB Query List for Tavern Road Culvert Improvement Project - March, 2008, Locations withn 5 miles of project site.

Scientific NAME	Common NAME	FEDERAL LIST	CALIFORNIA LIST
Acanthomintha ilicifolia	San Diego thorn-mint	Threatened	Endangered
Accipiter cooperii	Cooper's hawk	None	None
Agelaius tricolor	tricolored blackbird	None	None
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None	None
Artemisia palmeri	San Diego sagewort	None	None
Aspidoscelis hyperythra	orange-throated whiptail	None	None
Aspidoscelis hyperythra	orange-throated whiptail	None	None
Aspidoscelis tigris stejnegeri	coastal western whiptail	None	None
Astragalus deanei	Dean's milk-vetch	None	None
Astragalus oocarpus	San Diego milk-vetch	None	None
Brodiaea orcuttii	Orcutt's brodiaea	None	None
Bufo californicus	arroyo toad	Endangered	None
California macrophylla	round-leaved filaree	None	None
Ceanothus cyaneus	Lakeside ceanothus	None	None
Chaetodipus californicus femoralis	Dulzura pocket mouse	None	None
Charina trivirgata	rosy boa	None	None
Clarkia delicata	delicate clarkia	None	None
Cupressus forbesii	Tecate cypress	None	None
Dudleya variegata	variegated dudleya	None	None
Ericameria palmeri ssp. palmeri	Palmer's goldenbush	None	None
Eriogonum evanidum	vanishing wild buckwheat	None	None
Eumops perotis californicus	western mastiff bat	None	None
Euphydryas editha quino	quino checkerspot butterfly	Endangered	None
Horkelia truncata	Ramona horkelia	None	None
Icteria virens	yellow-breasted chat	None	None
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	None	None
Lycaena hermes	Hermes copper butterfly	None	None
Monardella hypoleuca ssp. lanata	felt-leaved monardella	None	None
Muilla clevelandii	San Diego goldenstar	None	None
Nolina cismontana	chaparral nolina	None	None
Nolina interrata	Dehesa nolina	None	Endangered
Nyctinomops femorosaccus	pocketed free-tailed bat	None	None
Phrynosoma coronatum (blainvillii population)	coast (San Diego) horned lizard	None	None
Polioptila californica californica	coastal California gnatcatcher	Threatened	None
Ribes canthariforme	Moreno currant	None	None
Salvadora hexalepis virgultea	coast patch-nosed snake	None	None
Scutellaria bolanderi ssp. austromontana	southern mountains skullcap	None	None
Sibaropsis hammittii	Hammitt's clay-cress	None	None
Spea hammondii	western spadefoot	None	None
Taxidea taxus	American badger	None	None
Tetracoccus dioicus	Parry's tetracoccus	None	None
Vireo bellii pusillus	least Bell's vireo	Endangered	Endangered

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site:	Tavern Road Culvert Improvement	City/County: San Diego/San Di	Sampling Date: 3/11/2008
Applicant/Owner:	County of SD Public Works	State: CA	Sampling Point: 1
Investigator(s):	Theresa Miller, Rick Bailey	Section, Township, Range:	
Landform (hillslope, terrace, etc.):		Local Relief (concave, convex, none):	Slope (%):
Subregion (LRR):	Lat:	Long:	Datum:
Soil Map Unit Name:		NWI Classification:	

Are climatic/hydrological conditions on the site typical for this time of the year? ☑ Yes ☐ No

Are Vegetation, ☐ Soil, ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" Present? ☑ Yes ☐ No

Are Vegetation, ☐ Soil, ☐ or Hydrology ☐ naturally problematic? (If needed, explain answers in remarks) No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes	☑ No	**Is the Sampled Area within a Wetland?** ☐ Yes ☑ No
Hydric Soil Present?	☐ Yes	☑ No	
Wetland Hydrology Present?	☑ Yes	☐ No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			
100	% Cover of Biotic Crust:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiplied by:	
OBL species		x1 =	0
FACW species		x2 =	0
FAC species		x3 =	0
FACU species		x4 =	0
UPL species		x5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☑ No

Remarks: Channel is scoured with very little area that would support vegetation between large rocks. No indicator wetland species present.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/4	100					silty sands	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ☐ Yes ☑ No

Remarks: Difficult to to excavate a soil pit because there is very little area of exposed soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizopheres along Living Roots (C3)
- ☐ Presence Of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☑ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☑ Drift Deposits (B3) (**Riverine**)
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? ☐ Yes ☑ No Depth (inches): _____

Water Table Present? ☐ Yes ☑ No Depth (inches): _____

Saturation Present? (Includes capillary fringe) ☐ Yes ☑ No Depth (inches): _____

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

OHWM is 2.5 to 4 feet wide along channel

Remarks: Pit dug approximately 30 feet downstream of culvert on west side of Taven Road. Site is an unvegetated waters of US / CDFG Channel

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site:	Tavern Road Culvert Improvement	City/County:	San Diego/San Di	Sampling Date:	3/11/2008
Applicant/Owner:	County of SD Public Works	State:	CA	Sampling Point:	2
Investigator(s):	Theresa Miller, Rick Bailey	Section, Township, Range:			
Landform (hillslope, terrace, etc.):	drainage channel	Local Relief (concave, convex, none):	convex	Slope (%):	10
Subregion (LRR):	Lat:	Long:		Datum:	
Soil Map Unit Name:		NWI Classification:			

Are climatic/hydrological conditions on the site typical for this time of the year? ☑ Yes ☑ No

Are Vegetation, ☐ Soil, ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" Present? ☑ Yes ☐ No

Are Vegetation, ☐ Soil, ☐ or Hydrology ☐ naturally problematic? (If needed, explain answers in remarks) No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes	☑ No	**Is the Sampled Area within a Wetland?** ☐ Yes ☑ No
Hydric Soil Present?	☐ Yes	☑ No	
Wetland Hydrology Present?	☑ Yes	☐ No	

Remarks:

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			
100	% Cover of Biotic Crust:		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiplied by:	
OBL species		x1 =	0
FACW species		x2 =	0
FAC species		x3 =	0
FACU species		x4 =	0
UPL species		x5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? ☐ Yes ☑ No

Remarks: Channel is scoured with very little area that would support vegetation between large rocks. No indicator wetland species present.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/4	100					silty sands	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [x] Histosol (A1)
- [x] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [ ] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? [ ] Yes [x] No

Remarks: Difficult to to excavate a soil pit because there is very little area of exposed soils present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- [ ] Surface Water (A1)
- [x] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [ ] Sediment Deposits (B2) (**Nonriverine**)
- [ ] Drift Deposits (B3) (**Nonriverine**)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [x] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizopheres along Living Roots (C3)
- [ ] Presence Of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Plowed Soils (C6)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [x] Water Marks (B1) (**Riverine**)
- [x] Sediment Deposits (B2) (**Riverine**)
- [x] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Thin Muck Surface (C7)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? [ ] Yes [x] No Depth (inches): _____

Water Table Present? [x] Yes [ ] No Depth (inches): 12

Saturation Present? (Includes capillary fringe) [ ] Yes [x] No Depth (inches): _____

Wetland Hydrology Present? [x] Yes [ ] No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

OHWM is 2.5 to 4 feet wide along channel

Pit dug immediately downstream of culvert on west side of Tavern Road. Site is an unvegetated waters of US / CDFG Channel

Photograph #1

Comments:
Shows the lack of vegetation of the OWUS on the East side of Tavern Road.

Photograph #2

Comments:
Shows the culvert that is located on the East side of Tavern Road and the slope of the channel. The channel runs through the culvert in a Northeast to Southwest direction.

Photograph #3

Comments:
Photograph is looking south at the channel from the northern side of the channel. The darker line on the bank shows the OHWM. The OHWM is approximately 4' wide.

Photograph #4

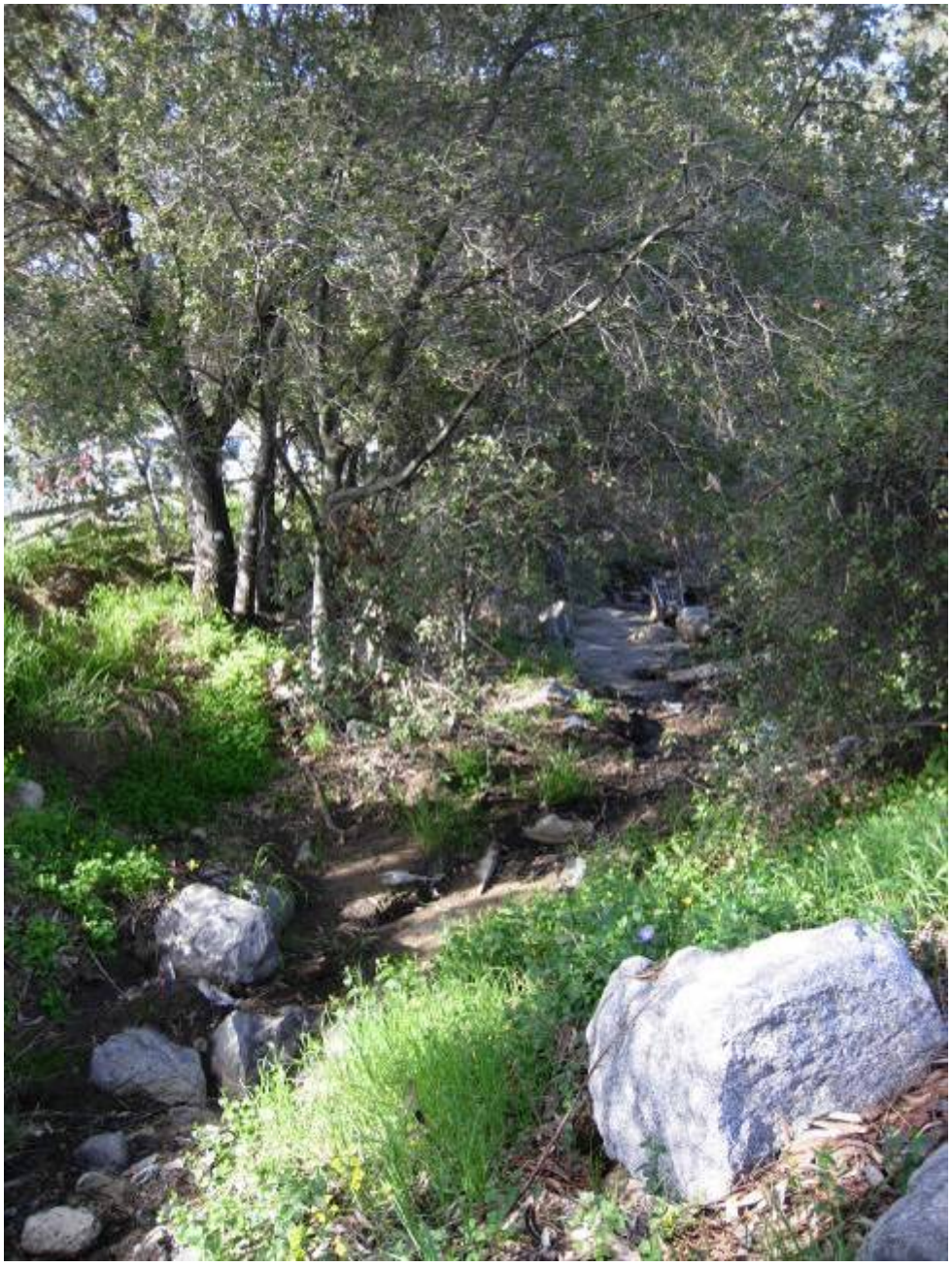
Comments:
Photograph is looking at culvert but from the southern side of the channel. Photograph shows the Eucalyptus trees surrounding the channel.

Photograph #5

Comments:
Shows the culvert that is located on the West side of Tavern Road. The OHWM is approximately 3' wide at the culvert. The photographer is standing on the North side of the channel.

Photograph #6

Comments:
Area where the rip rap narrows and reduces in size along the channel.



Photograph #7

Comments:

Photograph of the banks that are approximately 5' wide and 2-3' deep.

Photograph #8

Comments:
Shows that there is rock bottom in the channel at about 60' from the culvert.

Photograph #9

Comments:
Shows the increase in debris as move further into OWUS.

Photograph #10

Comments:
Photographer is standing in the channel and looking at slope of the bank on the northern side of the culvert.

Photograph #11

Comments:
Near the culvert, there is fill material at the soil surface.

Photograph #12

Comments:
Photographer is standing in the channel and looking at slope of the bank on the southern side of the culvert.

Photograph #13

Comments:
Shows that the channel changes from rock bottom to silty bottom. The banks are approximately 12' wide with 3' wide OHWM.

Photograph #14

Comments:
Photographer is standing near west end of parking lot and looking down the approximately 6-8' high banks.

Photograph #15

Comments:
Shows the parking lot and surrounding areas from the northern side of the channel.

Photograph #16

Comments:
Landscape view of eastern side of culvert showing eucalyptus trees and weedy vegetation.

Photograph #17

Comments:
Landscape view of western side of culvert showing oak trees along Arnold Way, eucalyptus trees, and ornamental vegetation associated with building for sale.